CUC '65

CAPABILITIES REPORT

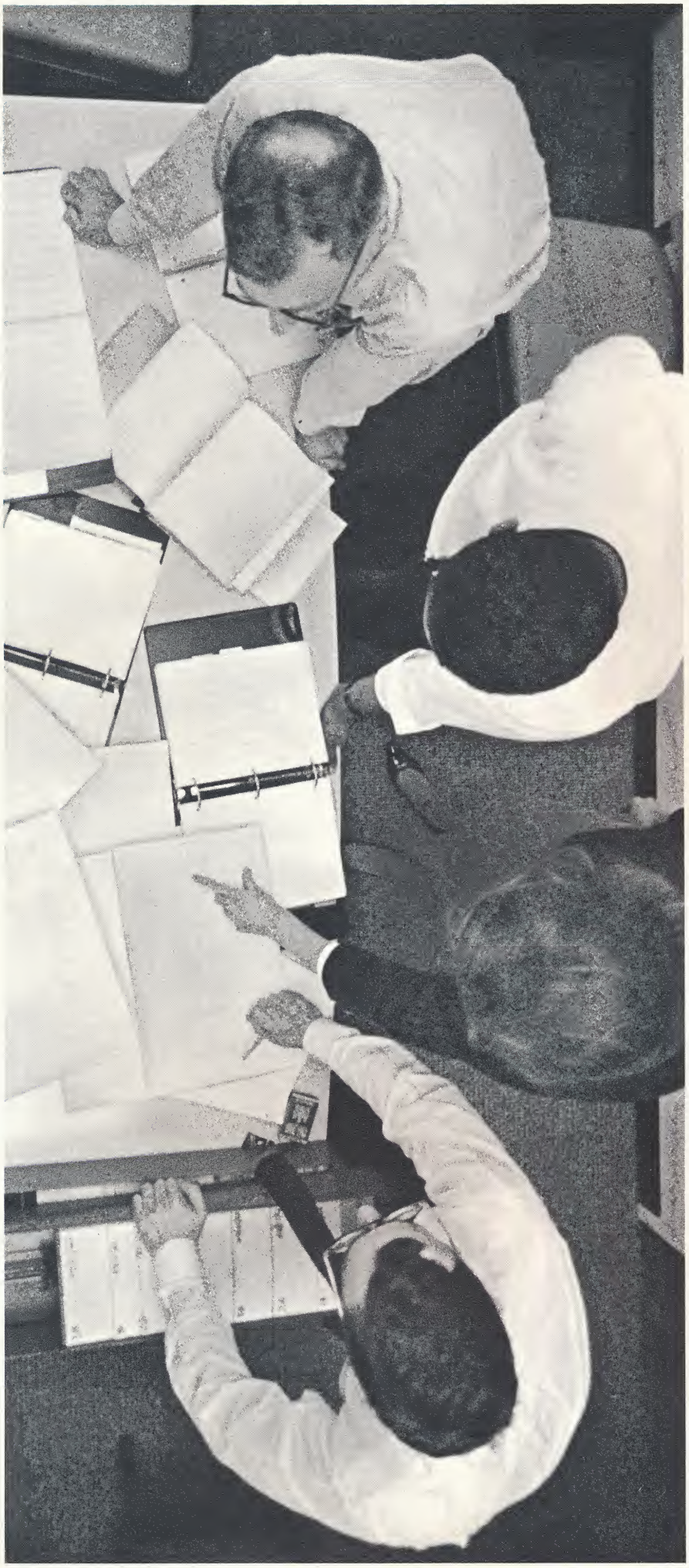
ONE DAY IN

MAY

© Computer Usage Company, Inc. 1965

One day in May at Computer Usage Company might find
. . . an analyst working on an inventory control system
for one client while
. . . two offices away another analyst pours over satellite
tracking programs;
. . . across the hall a group of programmers discuss a market
research tabulating program while
. . . across the continent a branch office manager
schedules a nuclear reactor project and
. . . in Washington, D.C. analysts and programmers work on
war gaming, on library cataloging, on information retrieval
for the giant maw of government files.

More than 350 people—specialists in computer applications, in making computers work. More than 350 top creative and technical computer professionals in six fully staffed offices on two coasts. This is CUC and that day in May was the company's tenth anniversary—a decade of computer analysis, programming, and operation.



Business applications

Computer feasibility study
Sales forecasting
Information storage & retrieval
Programming of data processing systems
Business gaming
Systems & project management
Plant management & maintenance
Accounting

Scientific applications

Astro-physics
Oil Reservoir simulation
Bio-statistical analysis
Civil engineering
Reactor physics
Geodesy
Infra-red mapping
Satellite tracking

Systems

Language development
Debugging systems
Simulation
Compilers
Command/control systems

Real-time applications

Telecommunications
Training simulators
On-line display
Air traffic control
Submarine control
Time-sharing

Computer facilities management

Complete system design
Computer selection
Initial analysis and programming
Debugging and installation
Operation, maintenance and extension

Computer time sales

Use of CUC hardware
Use of CUC brokerage services
(matching available computer time with computer time requirements)

Packaged programs

CUCU—(Computer Usage Control of Units)
— a complete inventory and sales control system.

QUIP—(Questionnaire Interpretive Program)
— Process and analysis of questionnaires.

PROFIT—(Program For Financed Insurance Technique)—a search for optimum insurance benefits per dollar invested.

MORTAB—(Mortgage Tabulation)
— Tabulating, scheduling and printing of mortgage payments and amortization.

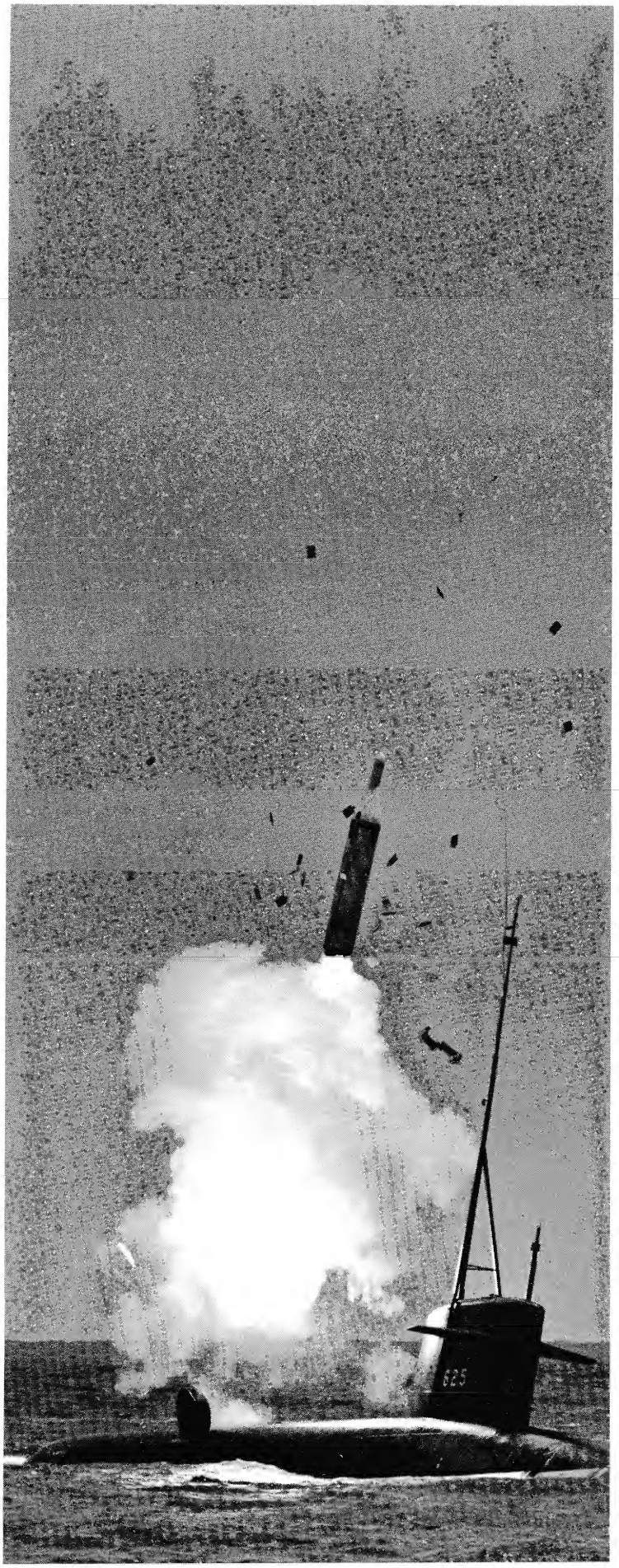
Come with us for the next five minutes. Look over our shoulders, see some of the equipment we're working on and some of the applications of our work.

Come back with us to that day in May, and spend at least a few minutes with us on our tenth anniversary.

We can't show you all the projects we were working on that day, but we can give you a pretty good cross-section of Computer Usage '65.

ONE DAY IN MAY

And early that day, as families took to the suburban roads to hunt for houses, we were at work on the design and implementation of a computer system to control and process about 70,000 mortgages for a leading savings bank. In addition to the man hours saved in making adjustments to escrow accounts, the system makes available statistical reports that simply weren't feasible before magnetic tape history files were kept.



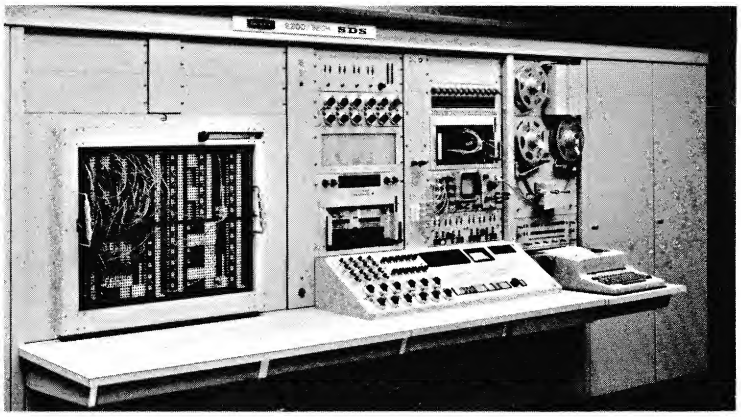
One of the first lines of American defense is the fleet of submarines carrying Polaris missiles. As a part of a program underway in May for the Navy, we simulated a computer that would be used on-board a submarine to guide the Polaris missile.

The many parts of a tractor and farm implements manufactured by a Midwestern firm must be centrally warehoused and distributed to eight strategic points. This and a factory order generation problem was solved by CUC analysts working on the RCA 301.

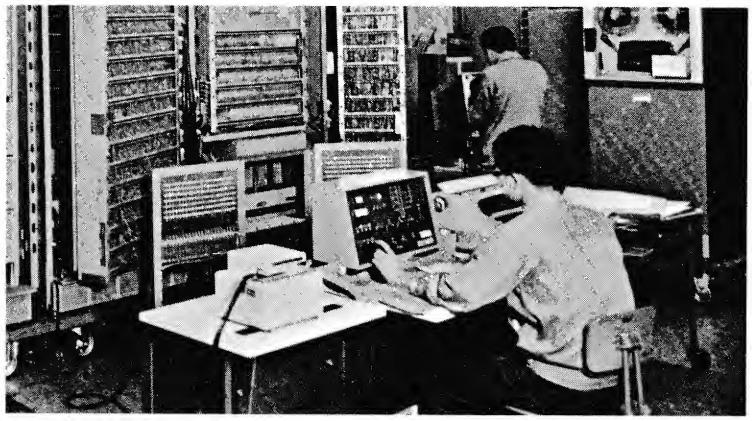
For a major bearing producer, CUC analysts followed the life of a bearing from the first step, the issue of raw steel, to the last, the sale to a customer. This information was turned into a cost control system which let the manufacturer pinpoint unprofitable product lines, sales offices, and high-cost production areas. CUC is implementing this system on the Honeywell 400.

To estimate time and costs for future voyages, major petroleum companies need analysis of massive quantities of data from completed voyages—data from port logs, desk abstracts, agents reports, invoices, etc. On that day in May, CUC was at work on such a marine and supply system.

In Washington, CUC analysts and programmers continued work on computer applications to reduce the clerical load of massive logistic calculations. The problem: Calculation of manpower and material to provide logistic support to the movement of troops into a theater. Among the several sub-programs was a network analysis to determine optimum flow of material from ports and beaches to supply depots near the front.

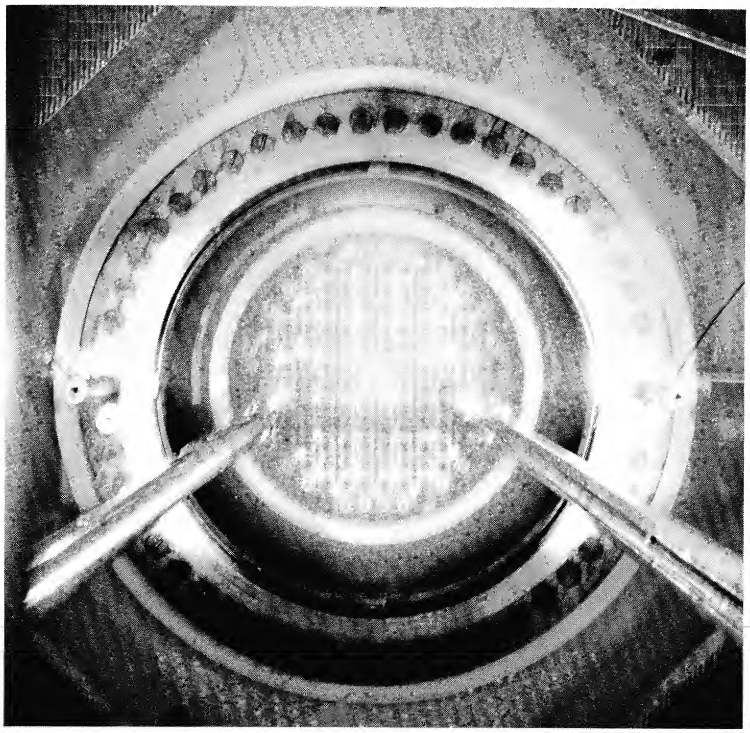


For a scientific instruments manufacturer, CUC developed a system that compiles FORTRAN programs which can be executed in a real-time environment. This system establishes interface and affords communication between digital and analog elements of the hybrid. As part of this application, we supplied software for a real-time electro-cardiogram.



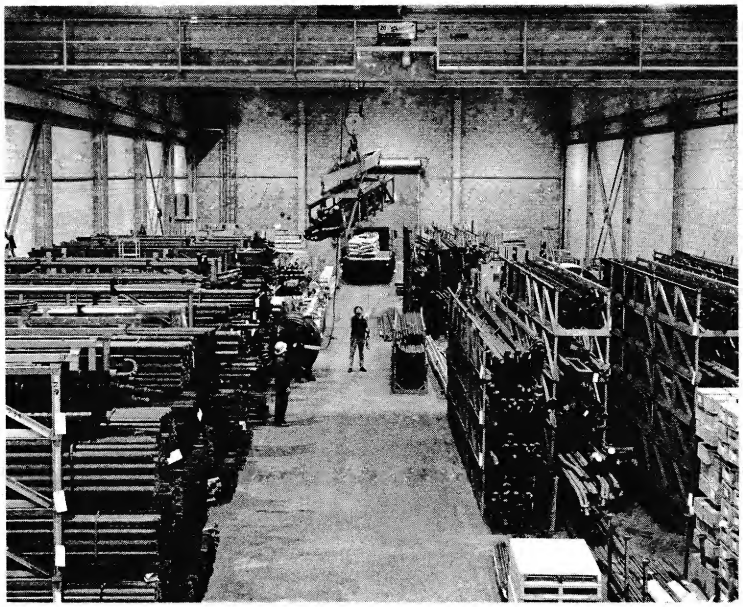
In another part of the world, the cherry blossoms had just come out and three Japanese industrial giants had recently signed a contract with CUC — a contract for the design and production of a complete automatic programming package for a large solid-state computer.

It takes more than tanks and guns to mobilize an army. Part of the problem is to provide lanterns and soap, as well. As part of a program with a management service firm, CUC was developing a secondary items and requirements model to run on the IBM 7080 and the RCA 501.

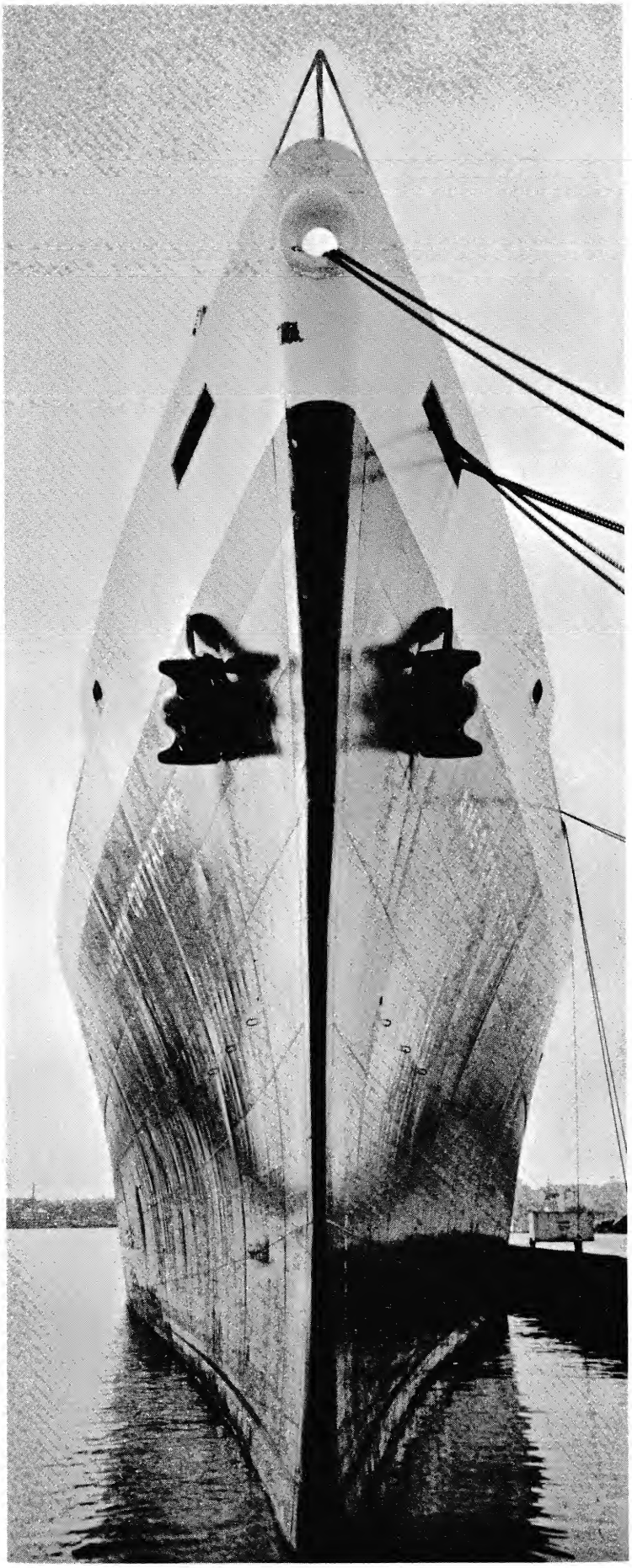


Come May and homeowners look to their air-conditioners and their pool filtering systems — and public utility officials look for a tremendous drain on power resources. One of the large manufacturers of nuclear power station reactors hired CUC to program simulation of various types of reactor design.

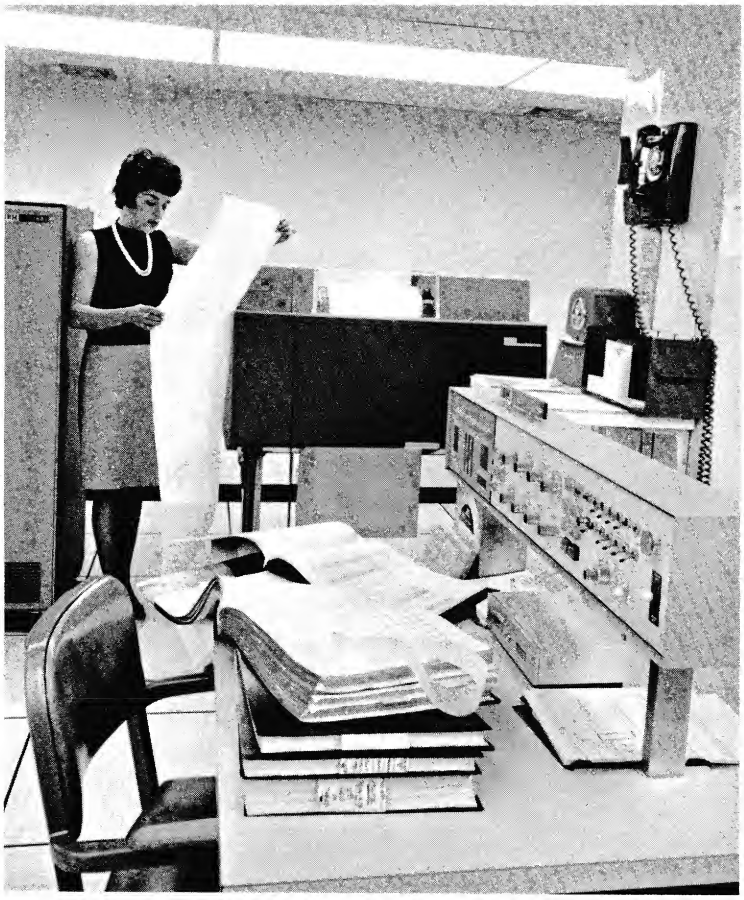
On our anniversary day, CUC analysts were simulating the movement of crude oil from arriving ships to crude units based on a specific set of refinery demands. Crude is moved from ships to terminal tanks, then through a pipeline to refinery tanks. The simulation was being designed for the IBM 7094 using SIMSCRIPT.



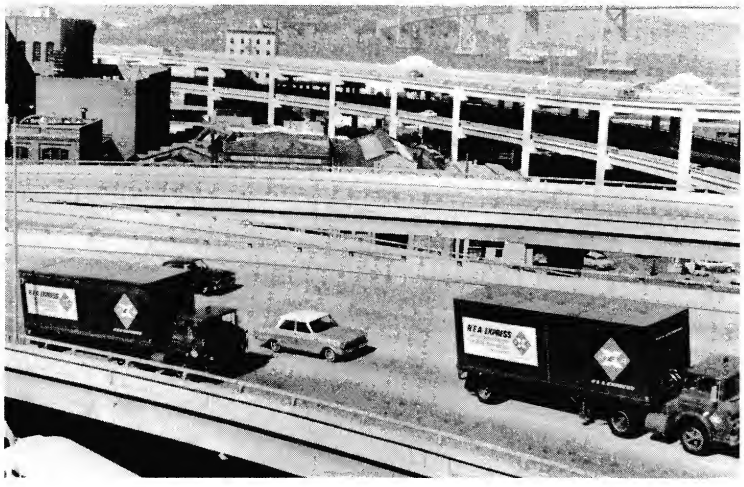
Public utilities must stock thousands of items in local warehouses. CUC designed and implemented an inventory control system that will permit inventory cost reduction of several million dollars. Under this system, local warehouses maintain about one week's inventory of all stock items and order all supplies from one central warehouse. This monster warehouse maintains an inventory level based on forecasted local demands.



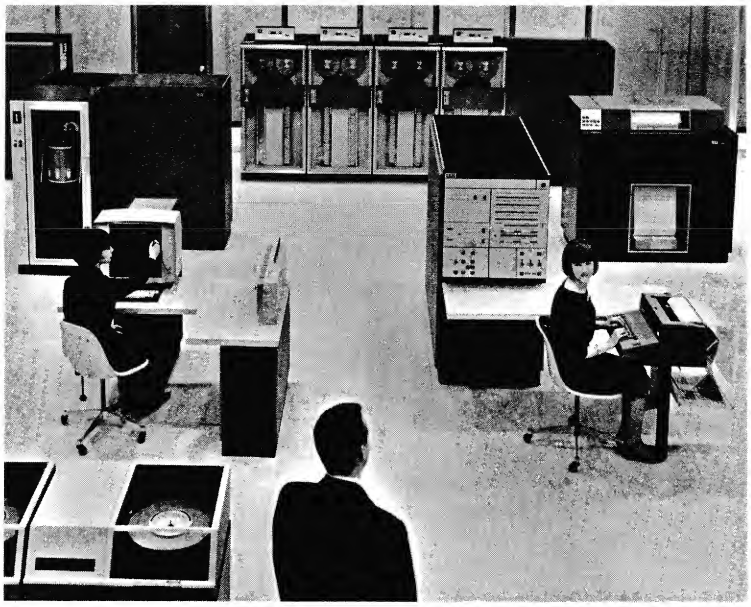
How do you keep track of the thousands of merchant marine crewmen signing on and off U.S. ships all over the world? That was the problem handed CUC by a government agency. Our analysts and programmers designed and implemented such a system which now yields complete data on personnel and generates reports.



For a major computer manufacturer, CUC is developing a Report Program Generator for a third-generation machine. This RPG compiler is capable of generating assembly language programs from a source language which doesn't explicitly describe the logic of the program to be generated. The input language is designed specifically for report writing and file maintenance applications.

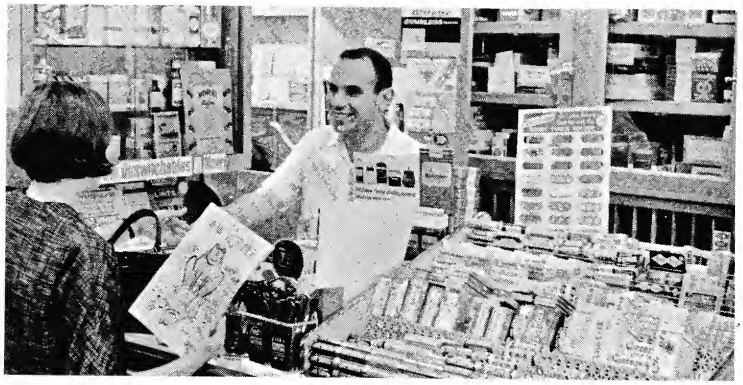


Take a fleet of trucks. Design and develop an automotive EDP system that would establish a perpetual inventory file of all parts used by each garage. Make sure the system prepares monthly reports showing usage, receipts, etc. while it develops a file of all reported defects. Finally, see that the system details all costs involved in maintaining each vehicle and each garage. (That's exactly what we did.)



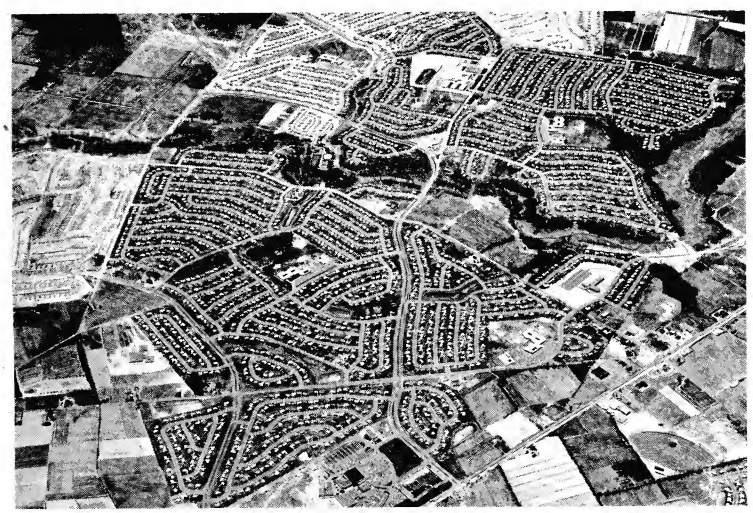
Increasingly, computer users are developing their own programming systems designed to meet their specific requirements. For one of the largest financial firms in the world, CUC was producing a special COBOL compiler for its IBM System/360 computer.

Mental health is of growing concern to Americans. For the Federal government, our Washington staff developed a system that would provide data on the status of national, state, and local mental health programs. This generalized information processing system provides basic capability for information storage and maintenance, search and retrieval, report generation, and file reorganization.

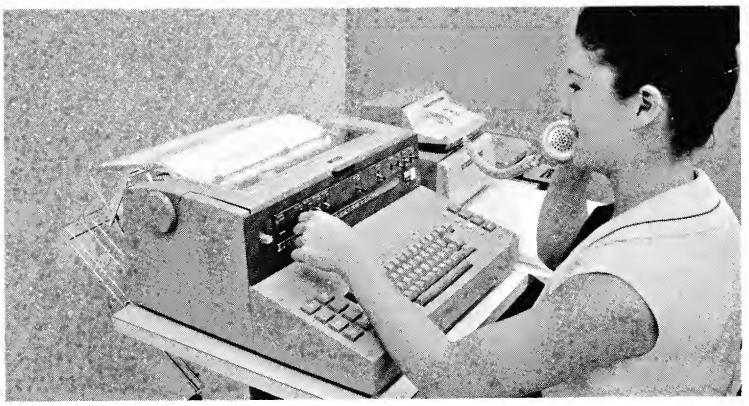


When one of the most populous states in the U.S. passed a state sales tax, CUC was awarded the computer programming contract to effect its implementation. The system of more than 50 UNIVAC III programs will check sales tax returns along with consumer taxes and utility taxes. It will also establish and maintain a master file of tax information on each vendor in the state.

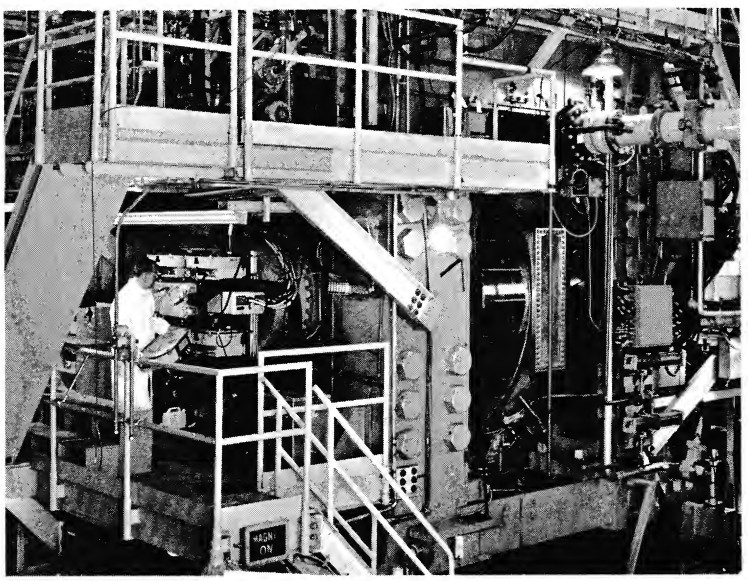
Among our many contributions to our Nation's defense, CUC analysts participated in the analysis and programming of infantry war games where the unit involved is the individual soldier or tank. Input data in the model includes weapons information, unit movement, orders decided on by player-commanders, and terrain data. Once the computer (IBM 7040) is given the input data, the game is an internal computer game. When opposing units engage in combat, attrition suffered by each side is determined by Monte Carlo techniques.



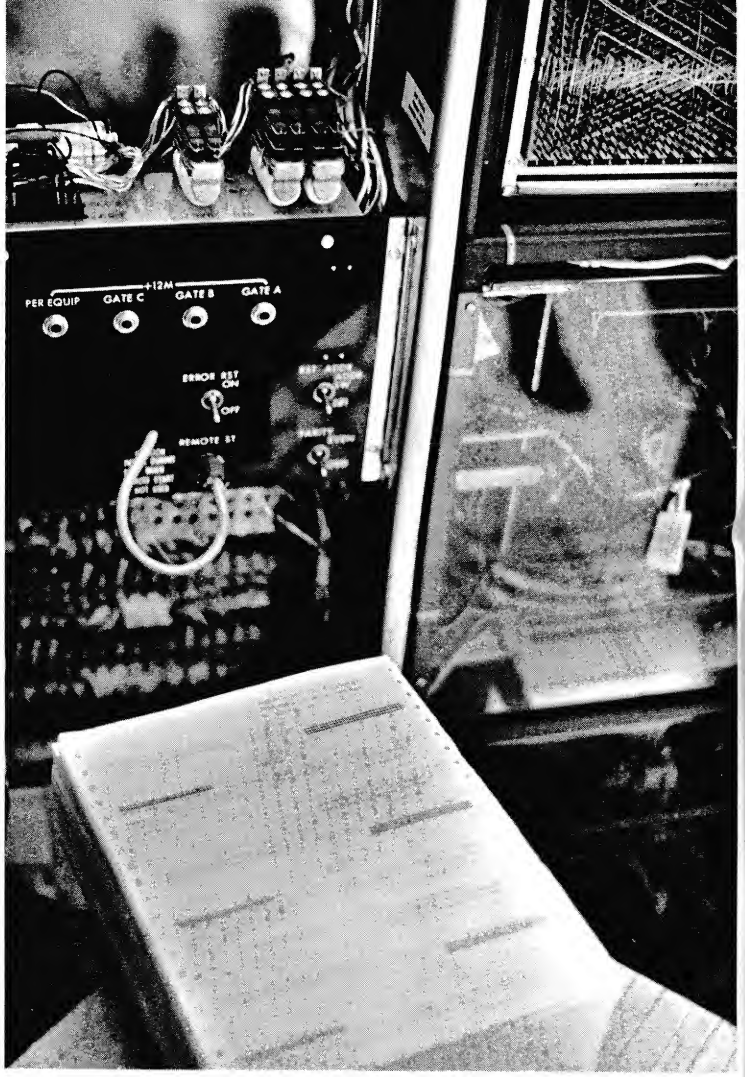
For a large Eastern state's Bureau of Equalization and Assessment — charged with computing equalization values for various villages and towns — we are programming a system, in COBOL, on the IBM 1410.



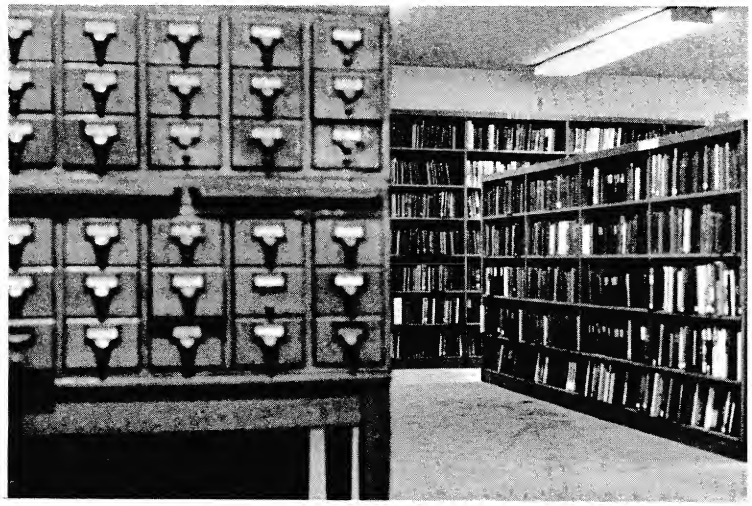
It's fitting that, on our tenth anniversary, CUC should be working on one of the most talked about developments in the field—time-sharing. We're designing and implementing those aspects of a time sharing system which allow communication between a user and a system. We're specifying a command language which allows the user to inform the system of his requirement. We're also designing a command language interpreter which transforms user-entered commands into system actions.



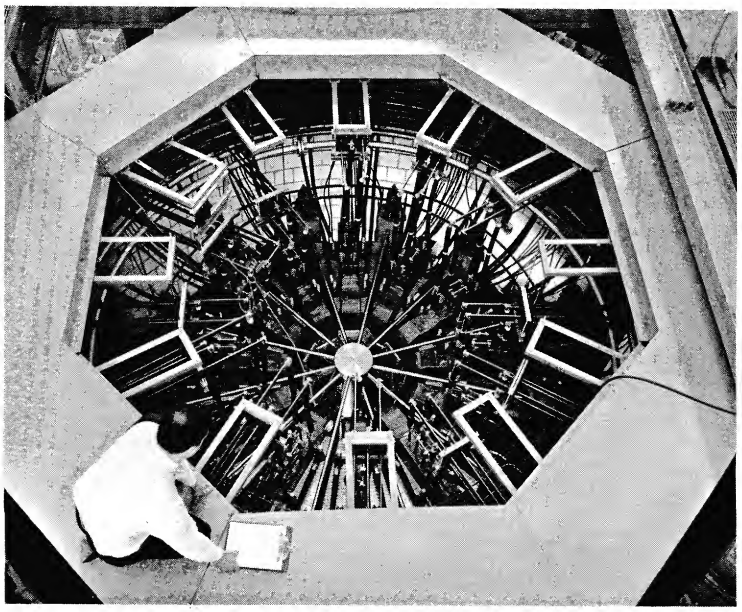
CUC analysts rode out to Long Island that spring day to continue an exciting project—writing computer programs to aid in the analysis of bubble chamber photographs obtained using one of the world's most powerful electron particle accelerators.



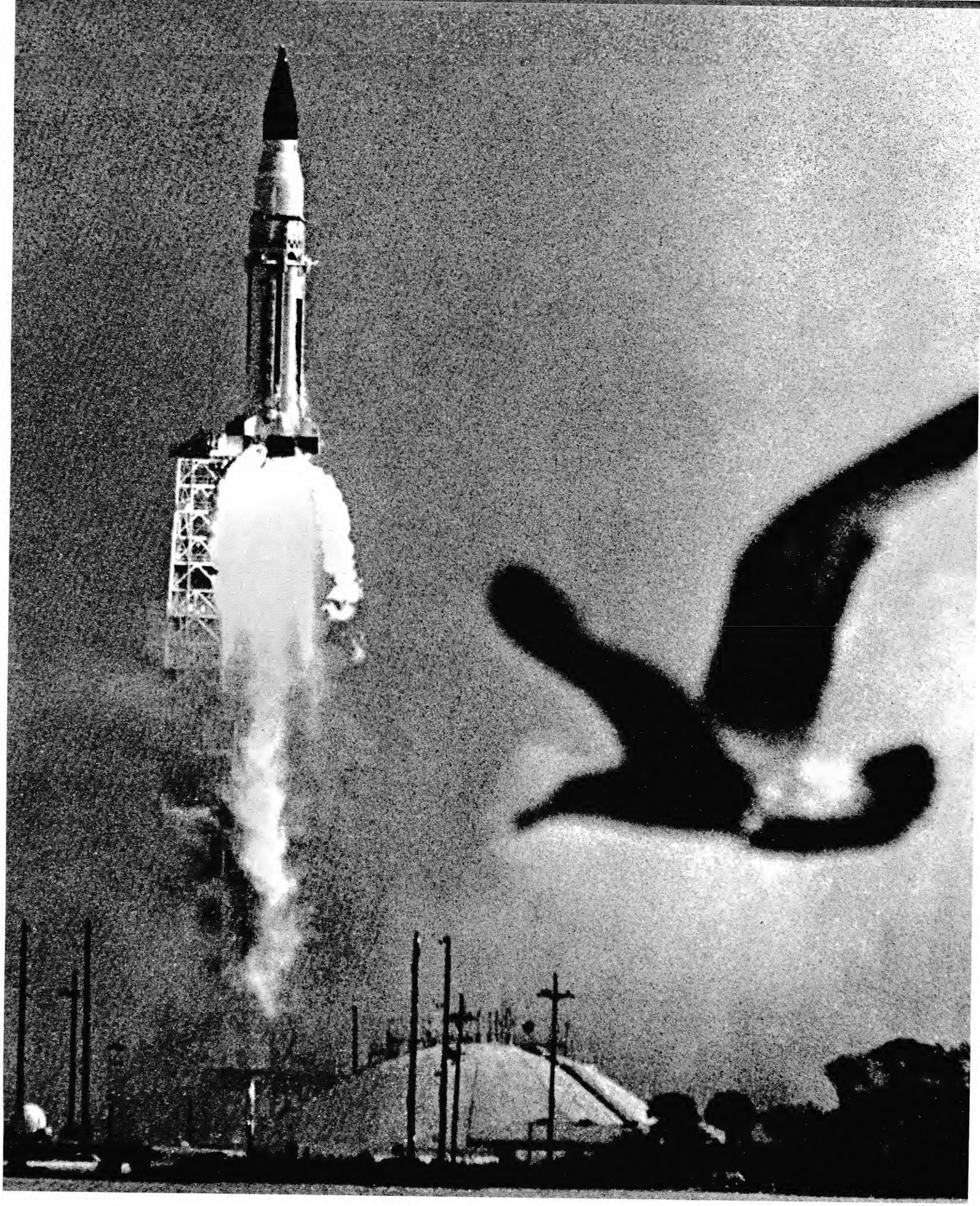
In the Government's efforts to streamline its operation, it is occasionally necessary to replace equipment with newer models. With the April 15 tax deadline still fresh in our minds, we were converting programs from one model to another, more modern, computer for your U. S. tax agents.



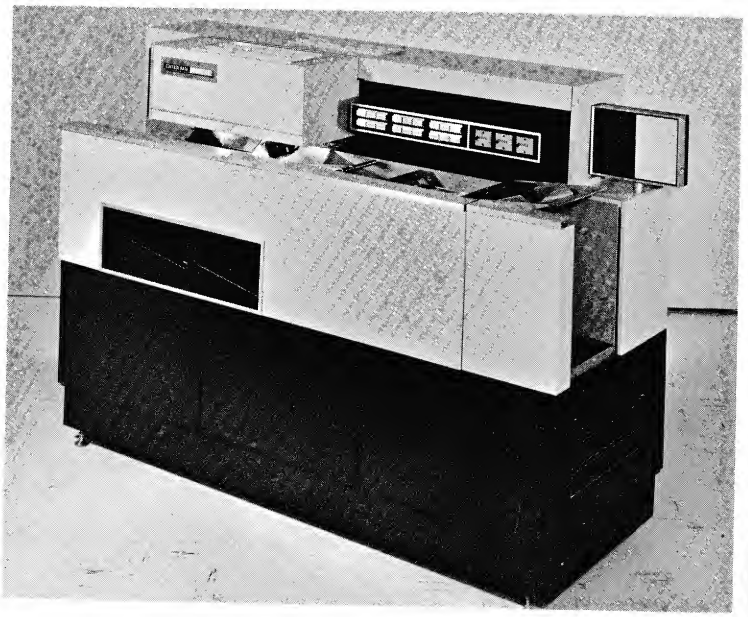
At many universities around the country, May is the time for thoughts of graduation. It's also the time administrators worry about the burgeoning student population, the heavy demands for materials and resources. For one university, CUC was at work on a library data processing system, to develop a set of programs which would automate cataloging, serials control, acquisition, and circulation.



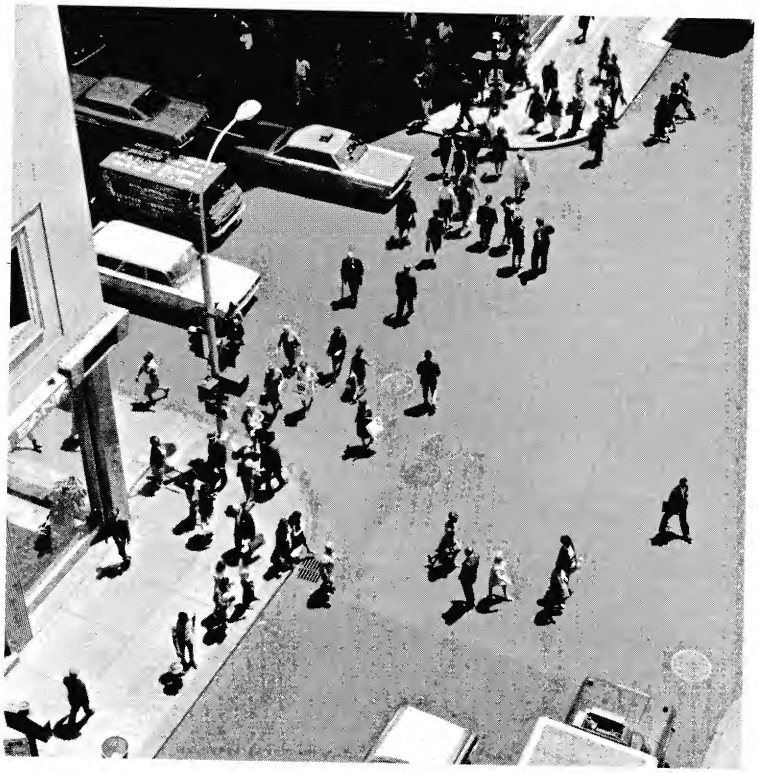
One of the critical systems we were working on in May was a monitor to control concurrent experiments at an electron accelerator and a cyclotron. The key to this system—developed at a large Eastern university — is the ability to execute many programs in a time-sharing environment.



And when we looked up at that spring sky, we thought of another project on stream—a ballistic trajectory model for the simulation of n-stages of particle and/or rigid body missile configurations. For a more precise simulation of atmospheric trajectory dynamics, one option of the model involves up to 107 aerodynamic coefficients.

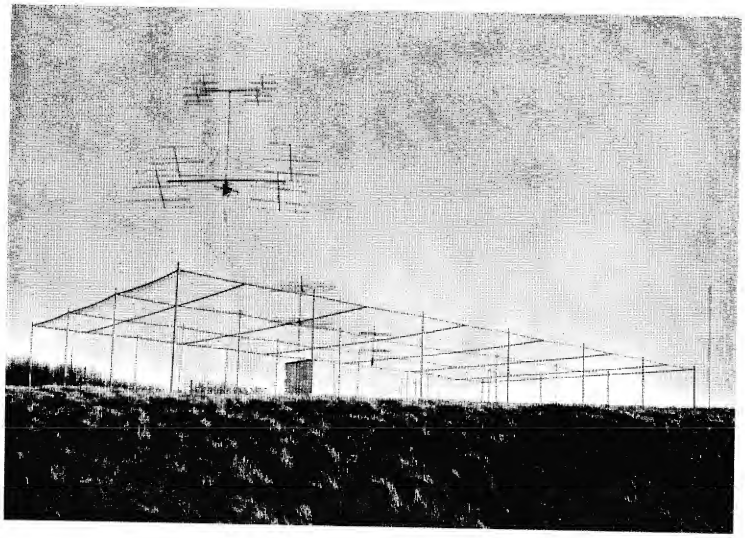


A new feature — in this case a new page reader that reads typewritten pages — requires new software. CUC supplied the preliminary software and programming knowhow to a manufacturer introducing this equipment.

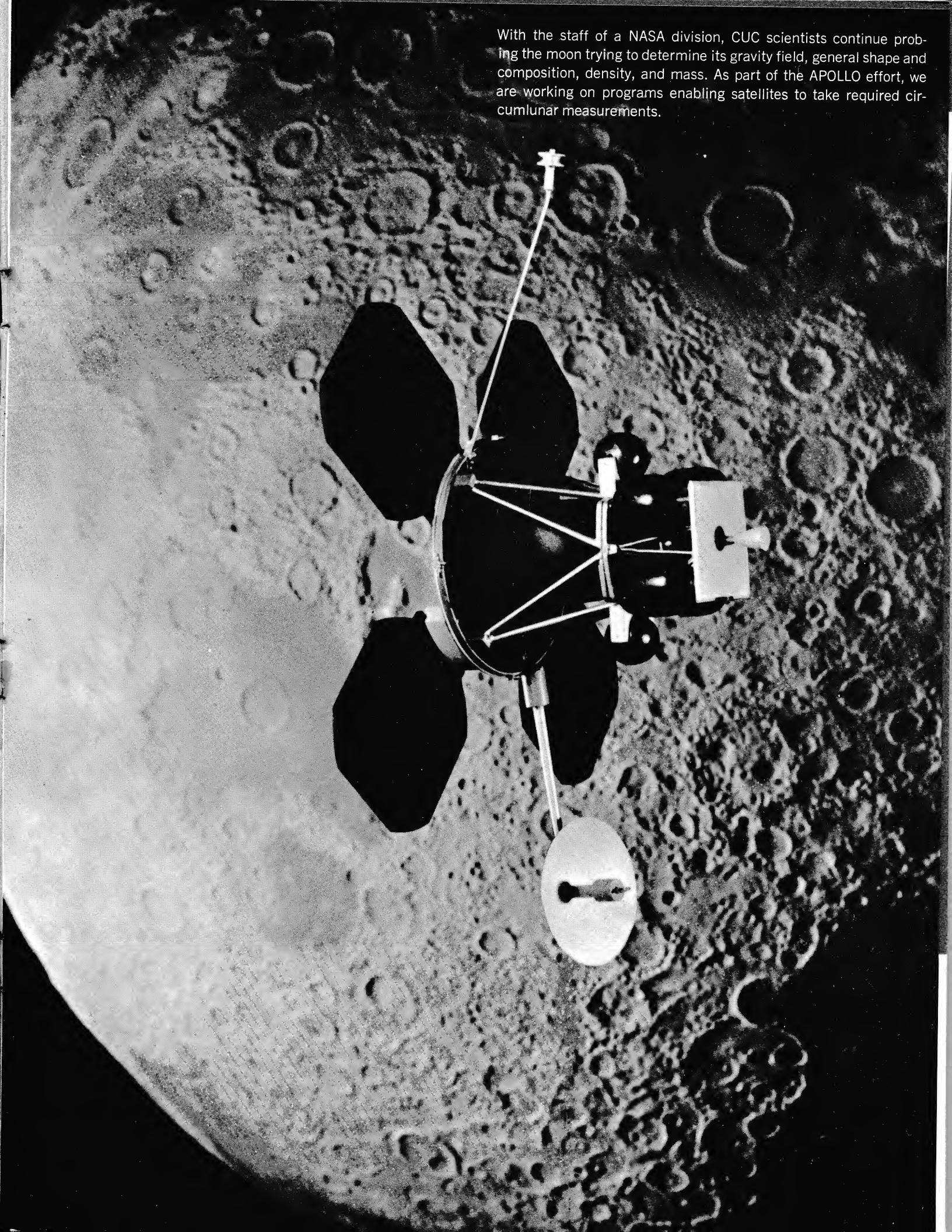


To some, they might be passers-by in a city street. But to CUC analysts working on a market analysis for a major distiller, they must have represented the extraordinary diversity of tastes and interests exhibited by American consumers. This analysis called for segmentation by whiskey brand, market location, and demographic factors. The system, designed for the H-200, called for tabulation, editing, updating, and report generation.

For one West Coast manufacturer this May, we developed a generalized report generator written in COBOL (Common Business Oriented Language). This system generates a COBOL program that permits flexible preparation of reports in user-specified format.



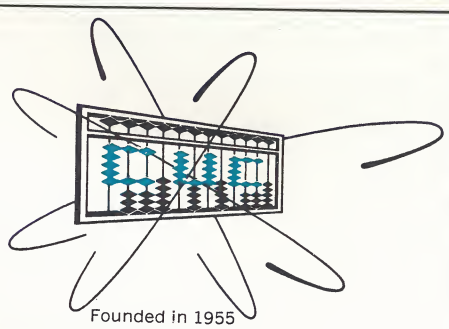
The CUC Boston office looked to the skies this May on a meteor tracking project for a scientific firm. The project involved driving radar to track meteor trails and accept various data; printing it out to a flexowriter; and writing it to magnetic tape to be further processed by an IBM 7040 computer.



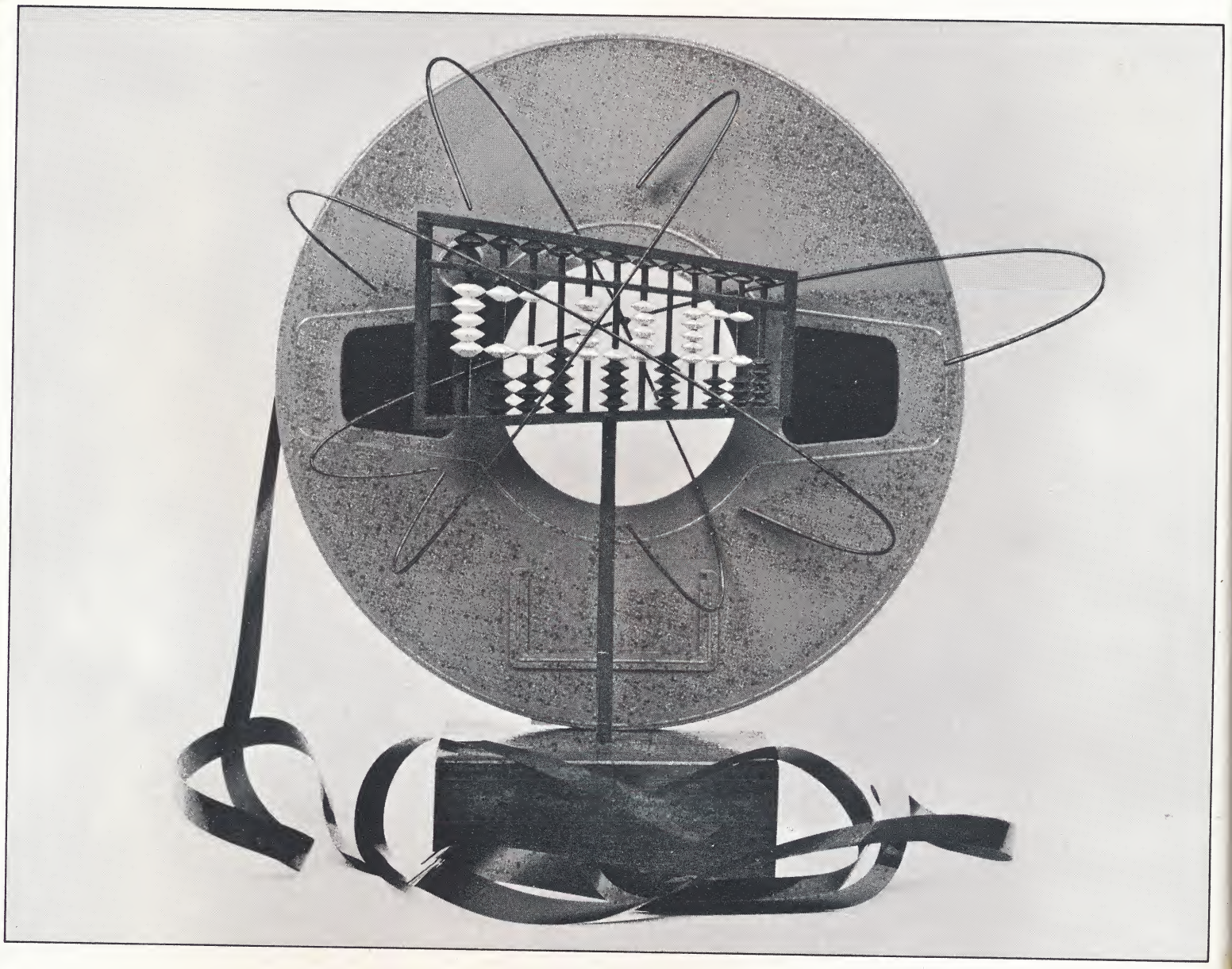
With the staff of a NASA division, CUC scientists continue probing the moon trying to determine its gravity field, general shape and composition, density, and mass. As part of the APOLLO effort, we are working on programs enabling satellites to take required circumlunar measurements.

The symbol of Computer Usage

CUC's symbol—the abacus surrounded by electron rings—represents man's quest for labor-saving calculating aids. Today at CUC, our professional staff's computer experience totals twenty centuries — roughly equivalent to the entire period from general use of the abacus to the introduction of the modern, electronic computer.



Founded in 1955



Capsule history

Computer Usage Company (CUC) was founded in 1955 as an independent organization of specialists in computer analysis, programming and operation. Today, over 350 persons in eight major population centers—Washington, New York City and Mt. Kisco, Los Angeles, San Francisco, Boston, Houston, and Baltimore are actively engaged in the dynamics of problem solving through the utilization of computers.

CUC's unparalleled record of growth and stability rests upon successful development of thousands of programs and computing systems for hundreds of different organizations, including services to eight leading computer manufacturers.

We invite you to address inquiries concerning professional career opportunities to any of our offices.

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Tel. (415) 321-6754

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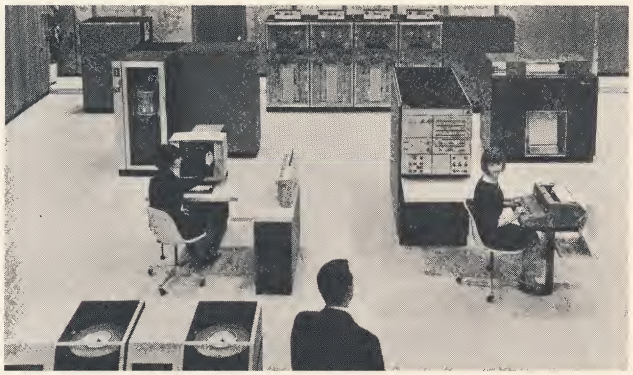
7315 Wisconsin Avenue, N. W.
Washington, D. C. 20014
Tel. (301) 656-0200

A Special COBOL Compiler for the IBM System/360



COMPUTER USAGE DEVELOPMENT CORP.

The Problem: Take a major insurance company that's converting to a new generation of computers. Aware that most present day COBOL compilers are painfully slow, managers are hoping that a new generation of compilers will be accompanied by a new generation of software. And so management has decided to go COBOL.

But the machine won't be delivered for 9 months; COBOL won't be available for 12 to 18 months but the company's anxious to get rolling.

Solution: The insurance company bought itself some insurance. CUC was hired to write a COBOL compiler.

In order to fully satisfy Prudential's needs, it was essential that the COBOL compiler meet four specific design criteria:

1. Early delivery
2. High speed compilation
3. Good object code
4. Upward compatibility with OS/360 COBOL

CUC Met All The Criteria

1. The COBOL compiler was operational in 8 months and delivered in 10 months. This enabled Prudential to train its staff, create a new test system, and write and debug COBOL programs even before delivery of its first machine.
2. With tape input and output the COBOL compiler compiles at about 1,000 statements per minute.
3. The object programs produced by the compiler contain very little administrative coding. One COBOL statement often produces only one machine instruction.
4. The language of the compiler is a subset of the OS/360 COBOL language. Linkage conventions are the same as for OS/360 and the object decks produced by the compiler are acceptable to BPS, BOS and OS/360.

Photographs courtesy of:
Con Edison
United States Navy
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Designed by Ruder, Finn & Fujita, Inc.

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